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ABSTRACT

Five strategies for teaching students in educational methods courses about instructional media were developed and field tested between 1967 and 1973. Strategies included mixtures of live demonstrations of media, scheduled laboratory periods, self-instruction programs, televised demonstrations of media, and bulletin boards and handbooks. A strategy that combined five weekly bulletin boards, a videotape showing a problem-to-solution situation, and a handbook detailing the production processes demonstrated in the videotape. Input by students outside the target audience was especially valuable in designing the most successful strategy. (RH)

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Teaching the Media Unit in a Social Studies Methods Course: An Evaluation of Five Strategies

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Education methods courses typically devote one or more units to the study of educational technology. Seven years and five strategies ago, the Instructional Media Laboratory at the University of Missouri-Columbia elected to support the teaching of media units within methods courses. The following description and evaluation of five strategies field tested in one such course, D126 Social Studies Methods, provide some conclusions useful to those who face similar design tasks.

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Evaluation Methodology

Criteria

The Instructional Media Laboratory at UMC is charged with maintaining a student laboratory for media production and practice as well as coordinating the undergraduate/graduate educational media curriculum. In the context of those responsibilities it was logical that the first strategy designed for teaching the basic media unit in D126 would be one which attracted students to the media courses and at the same time kept IML staff time commitments at a minimum. Thus the two major evaluation criteria early became (1) favorable student responses to the media unit; and (2) low IML staff effort. A total of eight strategy evaluation criteria were recognized and ranked:

1. Student shall respond favorably to content and method of the media unit both on a questionnaire and by enrolling in media courses.
2. The strategy shall require fewest possible annual hours of IML staff effort.
3. Student shall demonstrate mastery of media skills by using media in micro teaching exercises.
4. Strategy shall provide adequate opportunity for acquisition of skills information.
5. Strategy shall provide adequate opportunity for skills practice and production.
6. Topical materials shall be used in media unit to increase relevancy and interest.
7. Student differences in acquisition rates, preference for symbol forms and communication modes shall be accommodated.

8. Student (receiver) and teacher (source) should interact to complete communication cycle.

Procedures

Expressions of student satisfaction were gathered by written questionnaires administered immediately following exposure to Strategies One through Four. A questionnaire was administered immediately following the viewing of the video tape in Strategy Five, but before the distribution of the handbooks as an apriori measure of the validity of the print support mode. The number of D126 students subsequently enrolled in media courses was recorded.

Records of IML staff hourly effort were routinely kept during the seven year period.

The quantity and quality of student media utilization in micro exercises was evaluated by the D126 course instructor. It is reasonable to assume some variance in those evaluations as his expectations of satisfactory performance increased from 1967 to date.

Measurement of the remaining criteria was necessarily based upon analysis of the strategies' ability to provide such things as laboratory practice, skills instruction, ease with which topical materials could be introduced, and the degree to which individual needs and expectations were accommodated both in the unit design and in actual interaction with students.

Scoring

Evaluation data from each strategy were scored as HIGH, MODEST or LOW for each ranked criterion and assigned a numerical value of full, high, or none of the criterion score. A score of HIGH was desirable except for criterion #2 for which LOW scores were most desirable. Numerical values were multiplied by criterion maximum score and summed for the overall strategy score. Sums of those scores are shown in Table 1.

The reader will note that overall strategy scores are obviously dependent upon the criterion rank. For the term of this evaluation, rankings remained constant.

Decisions to reject a strategy were made on the basis of the overall strategy score compared to the speculative scores from the desired strategy. Inasmuch as the speculative desired strategy remained an unknown, strategy changes were largely characteristic of known reliable strategies which approximated the desired speculative one. This synthesis of feedback data from an at hand dysfunctioning strategy, a reliable known strategy and a desired speculative strategy constituted "feedforth": the remedial process fed into the dysfunctioning strategy with the expectation of attaining a greater approximation of speculative strategy outputs.

Strategies

Strategy One

Strategy One used IML staff as guest presenters in one regularly scheduled class meeting. Demonstrations of media

equipment and materials were conducted in a dog and pony show fashion. Students were encouraged to follow up their interest by enrolling in one of the semester length media courses. This strategy was used during the 1967/68 academic year.

Strategy Two

Strategy Two repeated the Strategy One live dog and pony show with the addition of special scheduled laboratory periods in IML where students could practice operating media equipment and produce sample materials. The methods course instructor encouraged students to use media during their micro teaching demonstrations. Strategy Two remained in use for the 1968/69 academic year.

Strategy Three

Strategy Three, inaugurated in response to persistent requests for more labs, made available 18 self instruction programs in the production and use of media. Programs combined cassette audio, 2x2 slides or loop films, flat visuals and printed handbooks. The programs were housed in a Self Instruction Center, staffed from 8-5 weekdays and Saturday mornings. Later in the year SIC added evening hours.

In a typical Strategy Three program the student listened to a brief tape recording as he followed an abstracted script and filled in key word blanks. He was then directed to observe a visual demonstration and asked to perform some manipulative task. He was then quizzed via the tape and checked his answers with SIC personnel who confirmed his responses, remediated

errors and logged his attendance. No large group presentation was made to the class.

The course instructor required satisfactory completion of 8 of the 18 programs and spot tested program content on the final exam. He again encouraged media utilization during the student's micro teaching experience. Strategy Three continued through several revisions for the 1969/70 and 1970/71 school year.

Strategy Four

Strategy Four was essentially a return to the dog and pony show, but was presented on television tape rather than live. Equipment and materials demonstrations were scripted into a 45 minute black and white program which used a cooking show format. A kitchen set reinforced the message that most processes could be duplicated at home without the use of special equipment. Two commercials at the end of each 15 minute segment plugged the Instructional Media Lab as a place for student media practice and production ("IML has time for you"). The taping was done in front of a live studio class and was replayed for other classes thereafter. The course instructor encouraged media use in the micro teaching units. No provision was made for testing media unit content on the course examination. This strategy was used for the 1971/72 and 1972/73 academic years.

Strategy Five

Strategy Five was produced in the summer 1973 session and inagurated in fall 1973/74 classes. The strategy has three

parts: (1) five prepared and packaged bulletin boards to be set up in the class one each week for the five weeks preceding the showing of the TV tape; (2) a 25 minute color cassette video tape using a problem to solution format; (3) a specially prepared and illustrated handbook detailing the production processes demonstrated in the video tape. This strategy is in current use.

Results

Strategy One

As simple as it was, Strategy One had some real strengths. Questionnaires indicated that at least 65 percent of the students thought the presentation interesting, relevant, and worthwhile. Moreover, a substantial number of them subsequently enrolled in the basic media course.

The limitation of Strategy One was predictable: with no provisions made for practice or production, other than enrolling in a semester length media course, few students made any use of media later in D126 when micro teaching performances were conducted.

Strategy Two

Strategy Two showed some small increase in favorable student responses. Apparently they appreciated the opportunity to use the Instructional Media Laboratory and the requirement for making some use of media in their micro teaching units.

On the minus side, Strategy Two increased the time commitment of IML staff by 200 percent. Unfortunately the additional

effort did not result in any more than a nominal use of IML by students. Most students waited until the last possible moment before micro teaching units were due and then slapped some material together to meet minimum criteria. At the same time they argued for more labs at more accessable times.

Strategy Three

Strategy Three failed to meet any of the top ranked criteria. IML staff spent far more than one hundred annual hours in the preparation, production, revision and supervision of the self instruction programs. At the same time, positive student responses to the media unit in the course dropped substantially. Although students were intellectually sympathetic with the concept of self instruction, they complained incessently about the tediousness of the programs, the need to actually perform the skills rather than see them demonstrated, and the inconvenience of attending the Self Instruction Center. Perhaps most disappointing to both the IML staff and the D126 course instructor was that the observed quality of media use by students in the course's micro teaching sequence remained at the same low level as in previous strategies.

Strategy Four

Strategy Four, developed on the rebound, was an attempt to reverse the trend displayed by Strategy Three. (See Figure 1) Strategy Four measureably increased student satisfaction with the media unit in the course. IML staff effort was reduced to 30 hours for production of the video tape and supervision

in the laboratory. No special labs were scheduled; students could drop in anytime.

Strategy Four did not stimulate as much production and practice as was accomplished through the self instruction strategy. The time honored student custom of leaving media preparation to the last minute prevailed and overall production was poor. Some students modeled their media use after the video tape: using TV show take-offs. This was not considered desirable by IML staff or the D126 course instructor. Requests for additional lab time again appeared among student responses.

The turning point in the design of strategies at this time came as a result of interview data gathered by summer seminar students who, following up questionnaires administered to the summer section of D126, observed that requests for increased lab time were tied in with expressions of confusion over inability to recall procedures and processes after the one-shot tape demonstration. The seminar students reasoned that if D126 students were given ample time to get ready for the media unit, saw the tape and were then provided with review materials, they might better retain and use the media content. It was from these conclusions that Strategy Five was developed.

Strategy Five

Student responses to Strategy Five were predominantly favorable. They scored the bulletin boards high in arousing curiosity and building interest. They ranked the TV tape as

the best or better than any they had seen in a college class.

The questionnaire was deliberately administered prior to handing out the handbooks in the hope that students would suggest printed materials as an improvement in the strategy and thus validate the handbooks. Such was the case, with 40% of the students requesting follow up materials. From the number of students visiting the Instructional Media Lab, an increase in the amount of media use during the micro-teaching sessions is predicted.

Sums of evaluation scores for each strategy show the audiotutorial strategy (#3), as being the least effective overall with a score of 11.0. Strategy Four, although it reversed the unfavorable direction of criteria one and two, has an overall score of 12.5, lower than both Strategy One score of 14.5 and the Strategy Two score of 18.5. Strategy Five shows a higher overall score of 28.5 but is low scoring across the lower ranking criteria. (see Figure 2)

Conclusions and Recommendations

Evaluating strategies on the basis of hours of annual effort may seem a less than professional criteria, yet it should be recognized that IML staff was involved in strategy design for other methods courses in addition to D126 and most effective strategies involved effort nearly equal to the number of contact hours for a 3 credit hour course. On the other hand, the effort is recommended if a valid and reliable strategy (when found)

can be maintained for an extended period with little additional annual effort. Present data make Strategy Five look promising in that regard.

Strategy Five was developed with considerable graduate student designers' input during a summer seminar. Their critical insight into the true meaning of requests for more lab time appears to be the breakthrough IML staff needed, a breakthrough which might never have come without student aid. Input by students outside the target audience is certainly to be recommended.

The unchanged priority ranking of criteria probably slowed the search for an optimal strategy. IML staff may have been concerned with both hours of annual effort and favorable student responses long after it was necessary. By the second year of operation, the demand for media courses had already outstripped the program's capacity and there was no need to woo students into those electives. Moreover, media curriculum construction was ahead of schedule and IML staff had more time to devote to strategy design. It is recommended that the priority of evaluation criteria be frequently questioned.

At least two explanations for the poor showing of Strategy Three seem plausible. First, the use of an audiotutorial system divorced the media unit from the context of the on-going course. Students may have then perceived the media assignments as adjunctive, irrelevant and excessive. Strategies which keep the media unit within the confines of the regularly scheduled course activities are recommended.

Secondly, the individualization foreseen in the audio-tutorial system may have been snythetic. In earlier strategies, students were given a brief but complete overview of all procedures and processes to be learned. They were then free to choose those which they might investigate in some depth. No such overview was possible in the Strategy Three. Rather, the student chose from a list of 18 unannotated programs, and had then to listen to a portion of the tape of each to determine if he wished to complete the program. Moreover, many program choices were made on the basis of what programs were not in use at the time the student visited the Self Instruction Center. Strategies are recommended which provide overview of processes and procedures from which students can make selections for in-depth study.

The evaluators are persuaded that students are generally rather easy to please and believe that any strategy which presents its messages in bright, informal and humorous designs can be assured of positive student responses regardless of scores on other criteria. Strategy Three was the only design to receive substantial negative responses and it was decidedly neither bright, informal nor humorous. However, it was the only strategy to score high on criteria #5 and #7. If criteria priorities were reordered, Strategy Three could be the most successful. If any case, student applause should be ranked well below student achievement.

The data suggest that students are not likely to follow suggestions or other subtle cues to apply media skills.

Few students took the time to practice, produce and use media in D126 micro teaching until the course instructor required such behaviors. Strategies are recommended which derive from and are supported by explicit expected student behaviors.

Finally, it should be recognized that instructional design within a dynamic educational system is more creative than scientific. As goals and objectives of a higher education system change the desired speculative strategy must also change to stay on line with new constraints. Therefore, the simple practice of using feedback data from an at hand dysfunctioning strategy as the remedial input to correct the strategy is not likely to be productive unless those data are tempered by the dynamics of the speculative desired strategy. It is recommended that designers incorporate feedback into the broader concept of feedforth as a process for generating more productive strategies.

Figure 1. IML Staff Effort and Percent of Favorable Student Responses: Criteria I and II

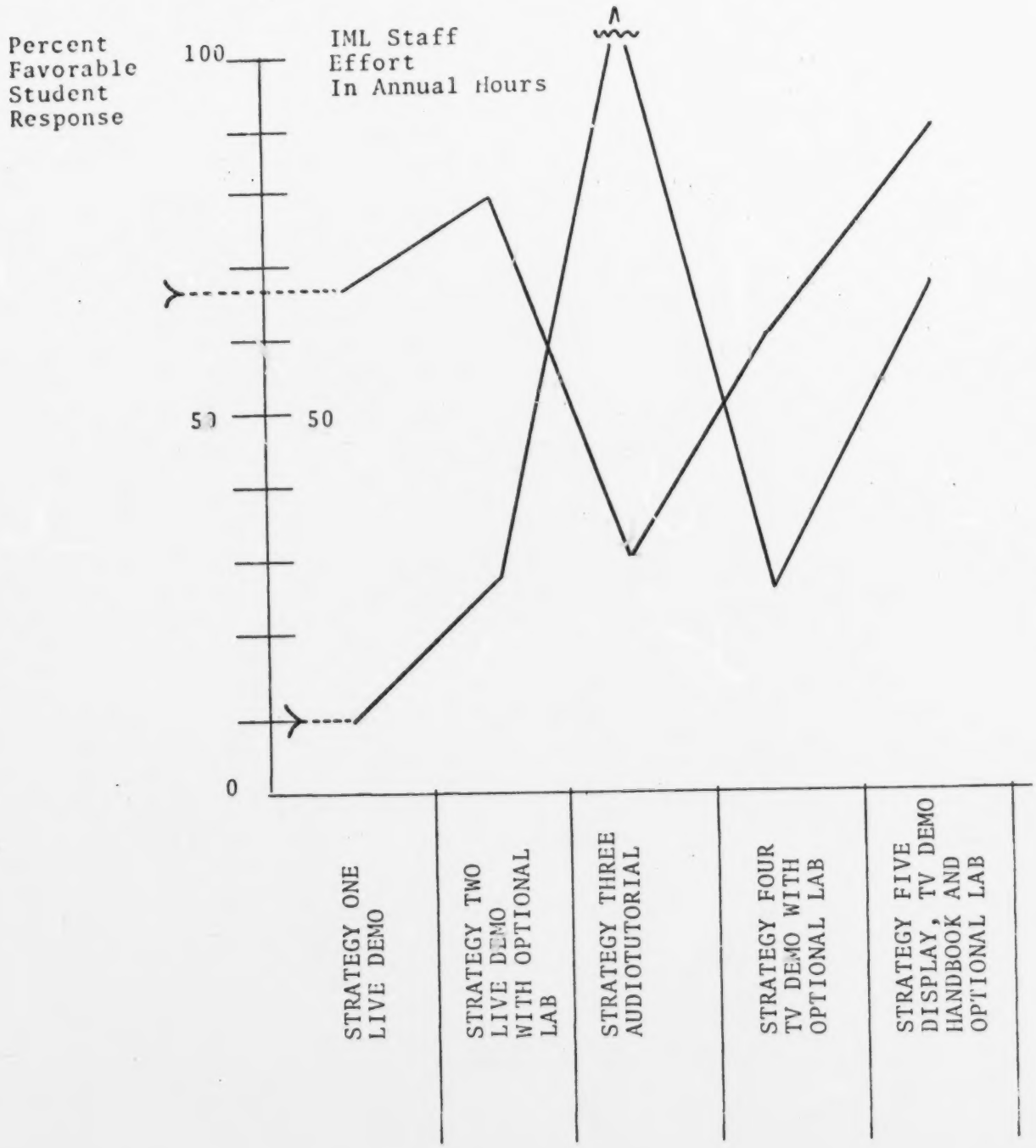
Percent Favorable Student Response
100
IML Staff Effort In Annual Hours
50
50
0
STRATEGY ONE LIVE DEMO
STRATEGY TWO LIVE DEMO WITH OPTIONAL LAB
STRATEGY THREE AUDIOTUTORIAL
STRATEGY FOUR TV DEMO WITH OPTIONAL LAB
STRATEGY FIVE DISPLAY, TV DEMO HANDBOOK AND OPTIONAL LAB

Figure 2. Evaluation Score Totals by Strategy

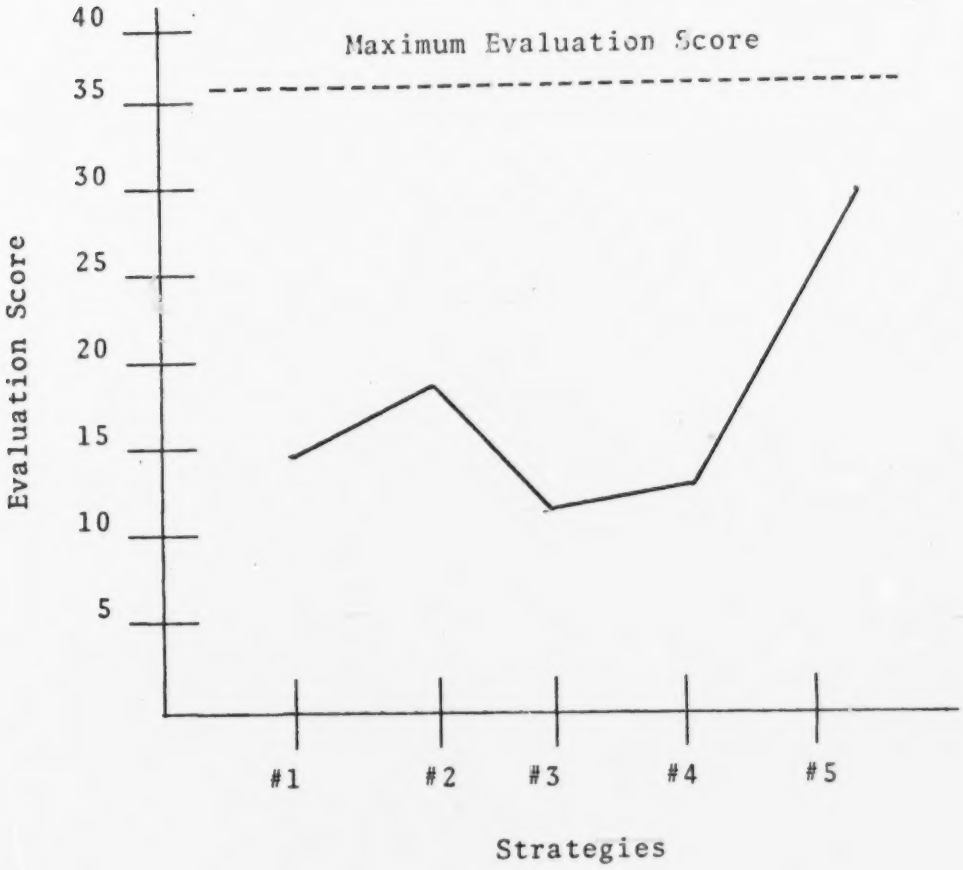

Table 1. Evaluation Scores for Five Ranked Criteria

Priority Rank	#1 Live Demonstrations	#2 Live Demonstrations with Lab	#3 Audiotutorial	#4 TV Demonstration with Optional Lab	#5 TV Demonstration, Display and Handbook with Optional Lab	Criterion Score
1	MODEST 4.0	HIGH 8.0	LOW 0	MODEST 4.0	HIGH 8.0	8
2	LOW 7	MODEST 3.5	HIGH 0	MODEST 3.5	HIGH 7.0	7
3	LOW 0	LOW 0	LOW 0	MODEST 3.0	HIGH 6.0	6
4	LOW 0	LOW 0	HIGH 5.0	LOW 0	HIGH 5.0	5
5	LOW 0	MODEST 2.0	HIGH 4.0	MODEST 2.0	MODEST 2.0	4
6	HIGH 3.0	HIGH 3.0	LOW 0	LOW 0	MODEST 0	3
7	LOW 0	MODEST 1.0	HIGH 2.0	LOW 0	MODEST 1.0	2
8	MODEST .5	MODEST .5	LOW 0	LOW 0	MODEST .5	1
Evaluation Scores	14.5	18.0	11.0	12.5	29.5	36.0